

## Description of complete basic immunization coverage among infant

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### ABSTRACT

Immunization coverage in every city/regency must be conducted in accordance with the standard coverage to suppress infectious diseases that can be prevented by vaccination. Temanggung regency is one of the cities/regencies in Central Java Province that have not reached 100% of village Universal Coverage Immunization (UCI). The aim of this study was to determine the coverage of complete basic immunization in infants in Temanggung regency. The design of this study was descriptive observational with quantitative and qualitative approaches. The respondents of the research were 498 parents having 12-23 months infants dwelling within the administration of community health center of Temanggung district. The variables measured were basic immunization, punctuality of immunization, mothers' knowledge and benefits of immunization, possessing and understanding of manual about mother and children health. The instrument used was the Rapid Card Check Form recommended by UNICEF. The results showed that there were still infants who had not been immunized (2-5%) with complete basic immunization coverage >95%. The reasons were that the infants had low birth weight, sick children during immunization, and no support from parents. As the immunization program aims to reduce infant and child mortality, parental awareness is important to increase immunization coverage in Temanggung regency.

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## 1. INTRODUCTION

Immunization coverage in every city/regency must be in accordance with the standard coverage to suppress infectious diseases that can be prevented by vaccination. The aim of the immunization program in Indonesia is to reduce mortality of infants and under-five-year-old babies. Therefore, it is expected that by conducting immunization, the number of children suffering from diseases such as polio, measles, pertussis, and diphtheria can be reduced [1]. From 2014 to 2016, the complete basic immunization coverage in Central Java increased from 93.4% in 2014 to 97.2% in 2015 to 99.2% in 2016. However, the data were not in line with the fact that the cases of immunization-preventable diseases in Central Java also increased. The number of cases categorized as extraordinary events of measles rose from 308 cases in 2014 to 576 cases in 2015 to 1763 cases in 2016 [2-4].

Meanwhile, the success of an immunization program is measured and determined by the universal coverage immunization (UCI) achieved by a village. From 2014 to 2016, among regencies in Central Java Province, Temanggung regency (one village) failed to meet 100% village UCI; and therefore, it is necessary to improve the capacity on its immunization coverage [3-4]. The failure to apply complete basic immunization coverage in a village under the administration of Temanggung regency was caused by the

refusal of the community to get immunization due to religious beliefs [4]. As a result, a number of measles cases identified in Temanggung regency in 2014 to 2016 were 15, 0, and 17 cases respectively. The data indicated that the program of complete basic immunization coverage had not been thoroughly applied. Factors causing the problem to happen are job, knowledge, mothers' age, tradition, and family support [5-6]. This research was conducted by referring to the one that had been carried out previously in collaboration between LPPM UNDIP and UNICEF in 2016-2017 from which the implementation of rapid pro and rapid card check was applied on cadres of community health centers and officers holding immunization programs. This was based on the inequality in immunization coverage. Based on the problems discussed, the objective of the research was to find out the complete coverage of basic immunization in infants in Temanggung regency.

## 2. RESEARCH METHOD

Descriptive observational design with quantitative and qualitative approaches was used to analyze the population of all parents having 12-23 months infant. Meanwhile, the sample was 498 parents having 12-23 months infant after being sampled using random sampling technique. The research instrument used was Rapid Card Check (RCC) form recommended by UNICEF and the research variables were immunization coverage, punctuality of immunization, mothers' knowledge and benefits of immunization, possessing and understanding of manual about mother and children health. The data collected were descriptively analyzed and presented in tabulation

## 3. RESULTS AND DISCUSSION

Among 498 respondents, the age of Under-Two-Year-Old-Baby (UTYOB) having immunization is 12 months for the youngest and 23 months for the oldest. Based on the data exhibited in Table 1, the highest immunization coverage is BCG immunization, which is 97.3%; while, the lowest immunization coverage is HB0 immunization, which is 94.6%. Overall, the immunization coverage has reached the standard of the regency strategic planning of Temanggung regency in 2017, which was 90%. Meanwhile, the survey on the administration of immunization punctuality shows that 83.5% of the poor receives HB0 immunizations within 24 hours after giving birth; while, the lowest percentage of immunization punctuality occurs in BCG, which is 68.1%. Description of mother's knowledge and possessing of Mother and Children Health (MCH) manual shown in Table 2.

Table 1. Distribution of research respondents by immunization coverage and immunization punctuality of UTYOB

Variable	Yes		No	
	f	%	f	%
Temanggung				
1. Immunization Coverage				
HB0	473	95.0	25	5.0
BCG	486	97.6	12	2.4
Penta 3	481	96.6	17	3.4
Polio 4	481	96.6	17	3.4
Measles	474	95.2	24	4.8
2. Immunization Punctuality				
HB0	418	83.9	80	16.1
BCG	158	31.7	340	68.3
Penta 3	215	43.2	283	56.8
Polio 4	212	42.6	286	57.4
Measles	230	46.2	268	53.8

Tabel 2. Description of mother's knowledge and possessing of Mother and Children Health (MCH) manual

Variable	Yes		No	
	f	%	f	%
1. Know about Immunization	496	99.6	2	0.4
2. Know the benefits of Immunization	495	99.4	3	0.6
3. Having MCH handbook	498	100	0	0.0
4. Reading MCH handbook	338	67.9	160	32.1

Table 2 shows that 99.6% mothers know about what immunization is, 100% of them having the manual, but 32.1% read the manual occasionally.

The results of the survey showed that there were some infants who had not been immunized, as the highest immunization coverage was BCG immunization; while, the lowest immunization coverage was measles immunization. These facts confirmed the decline in complete basic immunization coverage in Temanggung regency. The reasons most often expressed by mothers who had not had their babies immunized were the babies had Low Birth Weight (LBW); so that, they had not had their babies immunized with Hb0 immunization, busy parents, children were sick when they were going to be immunized, and religious factors; the belief that vaccine given to the babies was religiously forbidden. Furthermore, most mothers believed that immunization would develop a negative effect on the children's health, such as fever. As some mothers expressed concern and fear that their children would get fever after being immunized, they did not take their children to community health center nearby.

This finding was similar to the ones from other countries. In the Kingdom of Arabia, reasons for not performing complete immunization, as stated by parents, were infants were sick (13.5%), and fear of side effect of immunization (7.7%). Further, Alyami et al argued that the side effect of immunization has become the major concern of parents in performing immunization for their infants [7]. Meanwhile, in Nigeria, 6% parents stop to immunize their infants when side effect takes place [8]. In Ethiopia, mothers having fear of common vaccine side effects were at a higher risk of defaulting than mothers perceiving vaccine side effect positively [9].

This finding was in accordance with the one of the research conducted by Albertina et al that the reason for the incompleteness of administering basic complete immunization that many mothers put forward was that the children were sick when they were about to be immunized as many as 28.4%, while, parents were afraid of the immunization side effects were 23.5%. Children being sick are in fact a contraindication for immunization but it cannot be the reason as an excuse for having the immunization incompleteness because immunization can be done when the children have recovered from the illness. Side effects such as fever or fretful children should not also become the reason for not having the babies immunized [10].

Moreover, certain reasons such as prohibition by the father, or not giving an answer referring to religious factors had been given. In relation to this case, Ikawati argued that one of the influences of the children not getting immunizations is the beliefs held or trusted by parents, or parents having bad experiences that affect them not to have their children immunized [11]. Further, research conducted by Kabir et al stated that husbands have an influence on the decisions of mothers to prohibit immunizing their children [12]. In this study, mothers admitted that the validity 'halal' of vaccines affect the judgement. A research in Malaysia reported similar finding, 1.3% mothers doubted 'halal' status of vaccines that cause incomplete immunization for their children [13].

According to L. Green's theory, factors influencing health behavior related to immunization are predisposing factors including knowledge and attitudes toward health as well as tradition and public trust; enabling factors such as availability of facilities and infrastructure; and reinforcing factors like families support, health workers, and community leaders [14]. This theory underlined the results of the interview to the mothers of the children. Information from mothers regarding their knowledge about complete basic immunization gathered by health center workers and cadres concluded that the perception of mothers in Temanggung regency about immunization could be classified as positive, as they stated that immunization benefited to their children. Researches on the awareness of mothers on the benefits of immunization have done, and they strongly influenced the implementation of performing complete immunization [15]. In contrast, a research in Congo showed no association between mother's attitudes towards vaccination with immunization status of child [16].

Most mothers had and followed the instructions of KIA handbook as one of the media information about immunization. According to the Indonesian Ministry of Health (2011), the KIA handbook is an early identifying tool to detect mothers and children related problems, and a tool for communication and counseling, as the handbook cover important information for mothers, families, and communities regarding services, mother and child health, including references and standard of services, nutrition, immunization, and development of children under five year old [17].

However, as most mothers rarely read the handbook, it would affect the awareness of mothers to have their children immunized. Favin et al argued that the main problem of completing immunization was low parental knowledge about the importance of vaccination [18]. In fact, having good knowledge develops mothers' understanding about correct information related to the benefits and objectives of having immunization; so that; it will affect the completeness of basic immunization of children including immunization schedules [19]. Other research finding showed that mothers' awareness upon the immunization schedule has a strong influence on the complete immunization to infants [20]. Meanwhile, Sutopo stated that the impact of mothers having low knowledge was not giving or delaying immunization to their children [21]. This immunization coverage survey used UNICEF recommended form. The RCC form was simple and designed to evaluate an immunization program in a region. The simple form was intended to be easily used

by community and community health centers. The result of the survey would be easily analyzed and concluded as a reference in setting the future plan within the community health center.

#### 4. CONCLUSION

There are still immunized infant with the youngest age of 10 months and the oldest age of 26 months. The immunization program is a mandatory program that aims to reduce infant and child mortality. Therefore, parental awareness is important to increase immunization coverage in Temanggung regency, because it will affect the completeness of basic immunization of children including immunization schedules.

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#### REFERENCES

- [1] Hardianti, Nur D. Immunization Textbook. Jakarta: Health Workers Education and Training Center (in Bahasa: Buku Ajar Imunisasi. Jakarta: Pusat Pendidikan dan Pelatihan Tenaga Kesehatan). 2015.
- [2] Central Java Provincial Health Office. Health Profile of Central Java Province in 2014. Semarang: Central Java Provincial Health Office. 2015 (in Bahasa: Dinas Kesehatan Provinsi Jawa Tengah. Profil Kesehatan Provinsi Jawa Tengah Tahun 2014. Semarang: Dinkes Prov Jateng; 2015).
- [3] Central Java Provincial Health Office. Health Profile of Central Java Province in 2015. Semarang: Central Java Provincial Health Office. 2016 (in Bahasa: Dinas Kesehatan Provinsi Jawa Tengah. Profil Kesehatan Provinsi Jawa Tengah Tahun 2015. Semarang: Dinkes Prov Jateng; 2016).
- [4] Central Java Provincial Health Office. Health Profile of Central Java Province in 2016. Semarang: Central Java Provincial Health Office. 2017 (in Bahasa: Dinas Kesehatan Provinsi Jawa Tengah. Profil Kesehatan Provinsi Jawa Tengah Tahun 2016. Semarang: Dinkes Prov Jateng; 2017).
- [5] Prihanti GS, Rahayu MP, Abdullah MN. Factors That Affect the Status of Basic Immunization Completeness in the Work Area of Community Health Center X Kediri City. (in Bahasa: Faktor – Faktor Yang Mempengaruhi Status Kelengkapan Imunisasi Dasar Diwilayah Kerja Puskesmas X Kota Kediri). *Saintika Med.* 2018;12(2):120.
- [6] Rahmawati AI, Wahyuni CU. (Factors That Affect the Status of Basic Immunization in North Krebangan). (in Bahasa: Faktor yang Mempengaruhi Kelengkapan Imunisasi Dasar Di Kelurahan Krebangan Utara). *J Berk Epidemiol.* 2014;2(1):59–70.
- [7] Alyami AR, Alhashan GM, Nasser IA. Knowledge, Beliefs and Practices of Parents towards Childhood Vaccination in Najran City, Saudi Arabia. *Egypt J Hosp Med.* 2018;70(1):1–7.
- [8] Uleanya Nwachinemere Davidson TBN. Mothers? Knowledge and Perception of Adverse Events Following Immunization in Enugu, South-East, *Nigeria.* *J Vaccines Vaccin.* 2013;4(6):1–4
- [9] Negussie A, Kassahun W, Assegid S, Hagan AK. Factors associated with incomplete childhood immunization in Arbogona district, southern Ethiopia: A case - Control study. *BMC Public Health.* 2016;16(1):1–9.
- [10] Albertina, M., Febriana, S., Firmanda, W., Permata, Y., dan Gunardi H. Kelengkapan Imunisasi Dasar Anak Balita dan Faktor-faktor yang Berhubungan di Poliklinik Anak Beberapa Rumah Sakit di Jakarta dan Sekitarnya pada Bulan Maret 2008. *J Sari Peditr.* 2009;11(1):1–7.
- [11] Ikawati, Anna N. Pengaruh Karakteristik Orang Tua Terhadap Status Kelengkapan Imunisasi Dasar Pada Bayi di Kelurahan Banyu Anyar Kabupaten Sampang. In: Skripsi. Surabaya: Universitas Airlangga; 2011.
- [12] Kabir M, Iliyasu Z, Abubakar IS GA. Knowledge, Perception and belief about childhood immunization and attitude toward uptake of poliomyelitis immunization in North. *Ann Niger Med.* 2005;1:21–6.
- [13] Ahmad NA, Jahis R, Kuay LK, Jamaluddin R, Aris T. Primary Immunization among Children in Malaysia: Reasons for Incomplete Vaccination. *J Vaccines Vaccin.* 2017;08(03):1–8
- [14] Green L. Health Promotion Planning An Educational and Environmental Approach, 2nd edition. London: Mayfield Publishing Company; 1991.
- [15] Debie A TB. Assessment of Fully Vaccination Coverage and Associated Factors among Children Aged 12–23 Months in Mecha District, North West Ethiopia: A Cross-Sectional Study. *Sci J Public Heal.* 2014;2(4):8–342.
- [16] Mapatano MA, Kayembe K, Piripiri L NK. Immunization related knowledge, attitudes and practices of mothers in Kinshasa, Democratic Republic of the Congo. Vol. 50, *SA Fam Pract.* 2008. 61 p.
- [17] Kementerian Kesehatan RI. Buku Kesehatan Ibu dan Anak. Jakarta: Kemenkes dan JICA; 2011. 1–48 p.

- [18] Favin M, Steinglass R FR et al. Why Children are Not Vaccinated: A Review of The Grey Literature. *Int Health*. 2012;4(4):229–328.
- [19] Hijani, Razana, Annis Nauli F, Zulfitri R. Hubungan Pengetahuan Ibu Tentang Imunisasi Terhadap Kelengkapan Imunisasi Dasar pada Balita Di Wilayah Kerja Puskesmas Dumai Kota Kelurahan Dumai Kota. 2014;1(1):1-8
- [20] Etana B, Deressa W. Factors associated with complete immunization coverage in children aged 12-23 months in Ambo Woreda, Central Ethiopia. *BMC Public Health*. 2012;12(1).
- [21] Patria Jati S, Martini M, Budi Mustofa S, Sriatmi A, Dewanti N, Budiyo B. Immunization Coverage on Infant in High-Risk Area in Semarang City Indonesia. Vol. 10, *Indian Journal of Public Health Research & Development*. 2019. 744 p.

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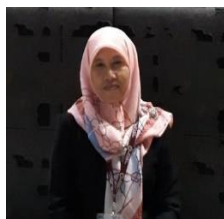
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